DOCUMENT RESUME

ED 464 428 EC 308 929

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TITLE An Assessment Protocol for the Evaluation of Attention Deficit Hyperactivity Disorder in the School Setting.
PUB DATE 2001-00-00
NOTE 13p.
PUB TYPE Reports - Research (143)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Attention Deficit Disorders; *Educational Diagnosis; Elementary Secondary Education; *Evaluation Methods; *Hyperactivity; Intervention; School Districts; Standards; *Student Evaluation

ABSTRACT

This paper first offers a rationale for the construction of a protocol for school-based assessment of attention deficit hyperactivity disorder (ADHD) and then presents a proposed diagnostic procedure. Guidelines were developed in the context of the definitional language regarding ADHD from the Diagnostic and Statistical Manual of Mental Disorders Fourth Edition as well as recommendations regarding the evaluation of ADHD made by the American Academy of Pediatrics, the American Academy of Child and Adolescent Psychiatry, and the National Institutes of Health. To effect a more comprehensive and systemic process, the proposed process is both "multi-source" and "multi-modal." The six components of the assessment process are: (1) a thorough review of the child's school records; (2) a complete developmental questionnaire and social-history form completed by the parent; (3) a review of medical records, a general measure of cognition, and an interview with the child; (4) a series of four behavioral observations of the child in various settings; (5) completion of the Attention Deficit Disorders Evaluation Scale; and (6) and completion of the "Components of ADHD Assessment Summary Sheet." Data on application of the protocol in the Bethlehem (New York) Central School District are summarized and implementation guidelines are offered. (Contains 18 references.) (DB)

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An Assessment Protocol for the Evaluation of Attention Deficit Hyperactivity Disorder in the School Setting

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Abstract: The purposes of this article are twofold, with the first being to summarize the rationale for the construction of a protocol for the school-based assessment of attention deficit hyperactivity disorder (ADHD). The second objective is to present and explicate these resultant diagnostic procedures. These guidelines sought to implement the definitional language regarding ADHD from the Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition/DSM-IV. Additionally, the assessment protocol encompassed the recommendations regarding the evaluation of ADHD which were recently made by the American Academy of Pediatrics, the American Academy of Child and Adolescent Psychiatry and the National Institutes of Health. The intent of this endeavor was to structure the process of school-based "diagnosis" of ADHD, such that it was both "multi-source" and "multi-modal", thereby resulting in a more comprehensive and systemic process. When this assessment protocol is utilized in a complete and consistent manner, it will be argued that the objectivity and efficacy of the school-based evaluation of ADHD are greatly improved.

THE PROBLEM

ADHD, of which there are three "subtypes", predominantly inattentive, predominantly hyperactive-impulsive and combined, is the most commonly diagnosed "mental health" disorder in children/adolescents (American Academy of Child and Adolescent Psychiatry, Press Release, 1/11/01). Given the seeming commonality of ADHD, which has a "prevalence rate" of 3-5% of school aged children (Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition/DSM-IV, 1994), one would assume that the process of reifying this "disorder" has reached a stage of development wherein there are now objective, reliable and valid standards/methods by which the diagnosis can be made. However, when the evidence to support this assumption is examined, it is found to be essentially non-existent, as there is wide variability regarding both the processes by which, and the subsequent increasing frequency with which the ADHD diagnosis is being made.

With regard to the former point, a draft of a recent "consensus statement" produced by the National Institutes for Health (NIH, 1998) noted that clinicians diagnose ADHD in an "inconsistent" manner and that "some clinicians misuse diagnostic tools" (American Psychological Association Monitor, 1999). Similarly, the American Academy of Pediatrics/AAP (2000) recently released "practice guidelines" that stated the following: "Practitioners of all types vary greatly in the degree to which they use the DSM-IV criteria to diagnose ADHD". A recent survey of the assessment practices of school psychologists (Demaray & Schaer, 2001), reported that high percentages of the respondents continue to rely upon "invalid" assessment methodologies (i.e., projective

tests, continuous performance tests, "Freedom from Distractibility" factor from the Wechsler Intelligence Scales).

Relative to the later point, the above referenced position paper from the AAP indicated that "Reported rates also vary substantially in different geographic areas and across countries". Recent substantiation for this statement was conveyed in a study, which reported that, dependent upon geographical area and racial group, the rate of ADHD diagnosis and subsequent usage of psycho-stimulant medication varied greatly (Education Week, 2000). This wide variability of the rate of ADHD diagnosis is not a "new" phenomenon, as was conveyed by both Valentine (1994) and Machan (1996). While space limitations preclude a more complete consideration of this issue, it is salient to note that, in those countries which utilize the International Classification of Diseases-10 as their basis for diagnostic criteria, the rate of diagnosed "hyperkinesis" has historically been much lower than the afore-mentioned 3-5% in the United States (c.f., Yapa & Haque, 1991; Reiger, D. et.al., 1994).

PREVIOUS RESEARCH

Based upon traditional conceptualizations of ADHD, which view this condition as being within the spectrum of "neuro-developmental" disorders, it's diagnosis and subsequent treatment have traditionally been viewed as being within the purview of such medical professions as psychiatry, neurology and pediatrics. Unfortunately, with regard to this "medical model" approach, there is a dearth of objective standards on which to base the "diagnosis" of ADHD. Support for this statement is conveyed in the recently released "Mental Health: A Report of the Surgeon General" (2000), the "National Institutes of Health Consensus Development Conference Statement" (1998), the "practice guidelines" of the American Academy of Pediatrics (Pediatrics, 2000), and a summary of the practice parameters for the assessment of ADHD by the American Academy of Child and Adolescent Psychiatry (Dulcan., M. & Benson, R.S., 1997).

All of these sources concur that, despite the portrayal of ADHD as a biologically based disorder and years of subsequent research into such "causes", there have never been any consistently demonstrated anatomical/structural, neurological, bio-chemical, or hereditary/genetic "difference" that allows for the reliable identification of "ADHD" from "non-ADHD" children. Therefore, the above noted role of the physician, neurologist or psychiatrist as the primary diagnostician for ADHD can, at best, be characterized as useful in helping to "rule out" a primary or co-morbid medical condition that may be contributory to the child's attentional/behavioral difficulties. But the point that needs to be emphasized is that there is no basis for these disciplines being either the primary or sole means by which the "diagnosis" of ADHD is made.

Unfortunately, relative to the school-based diagnosis of ADHD, it is salient to note that in the afore-mentioned survey of school psychologists by Demaray and Schaefer, the following summary statement is made: "A final noteworthy finding was the fairly significant number of school psychologists reporting they do not feel it is appropriate for

school psychologists to diagnose a child with ADHD". Despite this belief system, however, ADHD has been identified as a condition which meets the statutory language of a disability under the classification of Other Health Impairment (OHI) under the Individuals with Disabilities Education Act (IDEA). Consequently, students who are identified as exhibiting ADHD are eligible for the full spectrum of special educational services under this act and the school based practitioner is increasingly being called upon to conduct evaluations of students for suspected conditions of ADHD. With regard to this point of the increasing numbers of students meeting the OHI classification, it is salient to note that between the 1988-89 and 1998-99 school years, there was a 339% increase in such identifications (from the 21st and 22nd annual reports to Congress on the implementation of the Individuals with Disabilities Education Act, 1999 and 2000). While it is acknowledged that not all of this increase in OHI identified students can be attributed solely to ADHD, it is a reasonable presumption that the large majority of this increase can be accounted for by students who have been identified as ADHD.

Given that all of the related "medical" fields have acknowledged their limitations in "diagnosing" ADHD and that the school setting is the context wherein the vast majority of ADHD behaviors are recognized as being problematic, it is most typically the school psychologist who enacts the primary role of diagnostician for this condition. Subsequently, it is incumbent that school psychologists have some valid and reliable means of structuring and conducting these evaluations.

THE SOLUTION

The construction of the assessment protocol followed directly from the "diagnostic language" for ADHD from the DSM-IV. In addition, the practice guidelines from the American Academy of Pediatrics (2000), the conference statement from the National Institutes of Health (1998), and the summary of the practice parameters of the American Academy of Child and Adolescent Psychiatry (2001) were also used to structure these guidelines. More specifically, the protocol sought to make the afore-mentioned general guidelines very "applied" and to implement them in the school context.

METHOD

ASSESSMENT PROTOCOL COMPONENTS

I). Given that, in order for a child to meet the DSM-IV diagnostic criteria for ADHD, there must be evidence of symptomatology prior to the age of seven, the first component of the assessment protocol is a thorough review of all of the child's school records (with a particular focus on the first three school years). The specific records that are stipulated in the assessment protocol are all report cards/progress reports, with a particular attention to the relatively "objective" teacher judgements of the child's development and functioning in the areas of "Personal Work Habits" (i.e., such items as "Follows oral and written directions"; "Listens attentively" & "Works carefully and accurately") and "Self-Management and Relationships" (i.e., "Demonstrates self-discipline"; "Follows classroom and school rules").

In addition to the above information, any "narrative" information that the instructor has written with regard to the student's ability to engage in self-regulation ought also be considered. If all of the child's instructors, particularly those in the first three years, have not made consistent note of contextually inappropriate levels of attentional and behavioral control, this indicates that the child has demonstrated generally age-level appropriate development in these areas and that any difficulties have been of situational or "reactive" nature.

II).Directly linked to the same "exclusionary criteria" regarding the "age of onset", as well as the issues of temperament, "co-morbidity" and family functioning, the next component of the assessment protocol is a complete developmental questionnaire and Social-History form that is completed by the parent. This questionnaire addresses the following areas (a complete copy of the interview can be obtained by writing to the author):

-Postnatal period and infancy (particular emphasis on "temperament" and routine)
-Medical history/treatment history
-School history
-Social history
-Current behavioral concerns/disciplinary methods
-Information regarding family functioning
-Socio-emotional-behavioral concerns of relatives

In addition, the final section of the form directly "operationalizes" the diagnostic parameters from the definitional language of the DSM-IV, as is conveyed below:
-"Did your child demonstrate such behaviors as inattentiveness, impulsivity and distractedness before the age of 7?"
-"If the response to the above question is "yes", were these behaviors evident in more than one context (i.e., in home, as well as pre-school, etc.)?"
-"If the response to the above question was "yes", did these behaviors lead to some impairment of functioning (i.e., led to poor peer relationships, delayed acquisition of pre-academics, etc.)?"
-"If the response to the above question was "yes", are there any other known reasons for such impairment (i.e., anxiety, depression, learning disability, etc.)?"
-"Are there any home-based interventions which have proved helpful in assisting your child with constructing more adaptive ways of dealing with their inattentiveness and impersistence (i.e., breaking up work periods, taking frequent breaks, being provided with a quiet study place, being provided with some "incentive", etc.")?"

A follow-up discussion with the parent to review their responses is also a component of the evaluation process. For those individuals desirous of using a more standardized measure of early "temperament", one of the Carey Temperament Scales (i.e., Behavioral Style Questionnaire" for children ages 3-7, and the "Middle Childhood Temperament Questionnaire" for ages 8-12) are recommended. As an aside, the reader interested in the

interplay of temperament and environment is also referred to "Understanding Your Child's Temperament" by W. Carey (1998).

III). With reference to the issue of possibly "co-morbid" medical or educational conditions which might be contributing to inattentive, impulsive and/or motorically over-active behaviors, the following are the next components included in the assessment protocol:

-A review of all available medical records, inclusive of the most recent physical examination. Areas of specific physical dysfunction that might lead to contribute to "inattentive" and/or "impulsive" behaviors and therefore might be of particular interest are the following: vision/hearing deficits; epilepsy; blood lead level; and hyperthyroidism. With regard to this area, the child ought to have had a complete physical examination completed within a year of the referral date.

-As a means of discounting such possible "co-morbid" disorders as a learning disability, a receptive language delay, mild mental retardation, or some other socio-emotional issue (i.e., depression, anxiety), the use of a general measure of cognition, as well as a screening of academic achievement ought to be conducted in all instances. In those cases where it is indicated, the use of measures in the areas of language development, memory, adaptive behavior, and general screening of socio-emotional functioning ought also be utilized. The student's ability to engage in contextually appropriate levels of self-regulation during these assessment sessions ought also to be documented (i.e., response latency, ability to engage in sustained effort, any self-corrections of initially incorrect responses, etc.).

-An "interview" of the child regarding their perception of the reasons for the conductance of the assessment, ability to engage in behavioral control/sustained attention, and insights regarding factors that might be affecting their behavior (a copy of the interview protocol can be obtained by writing to the author).

IV). The next component of the assessment protocol is a series of four behavioral observations of the child that ought to take place in <u>various</u> settings (i.e., locations and times), preferably on different school days. The importance of conducting these observations at differing times and places is that this approach minimizes any "impact" that either contextual or temporal factors are exercising upon the child's behavior. With regard to the structure of these observations, they should be a minimum of one half-hour each in duration (i.e., a total of 2 hours of observation). While this may seem to be an inordinate amount of observational time, it is this writer's experience that this time invested in direct observation yields abundant information that could not be gathered in any other way.

The protocol that is followed is that the initial period of observation is conducted in a "blind" manner, meaning that the student's identity is unknown to the observer. The purpose of this approach is to objectify the observational process, whereby only the student's overt behaviors can differentiate them from their peers. As with all of the

observations, the "target" behaviors during this initial observation are derived directly from the DSM-IV diagnostic symptoms (these are listed below).

The subsequent three half-hour observational periods are each structured into 30 second time-sampling "blocks" (for a total of 60 intervals per observation). The method of recording the target behaviors is "partial interval" (i.e., if a target behavior occurs at any time during the interval, it is recorded as present). While partial-interval recording tends to "over-estimate" the occurrence of the behavior, it is felt that this approach is more practicable than others given the number of target behaviors.

With regard to the "target behaviors" that are used to structure all of the observational periods, they are derived directly from the overtly observable behaviors that are listed in the DSM-IV diagnostic criteria, and are as follows:

- Fails to give close attention to details/makes careless mistakes
- Difficulty sustaining attention to tasks
- Does not seem to listen when spoken to directly
- Does not follow through on instruction/fails to complete tasks
- Easily distracted by extraneous stimuli
- Fidgets with hands/feet, squirms in seat
- Leaves seat when remaining seated is expected
- Runs or climbs excessively
- Difficulty in playing or engaging in leisure activities quietly
- "On the go" or acts as if "driven by a motor"
- Talking excessively
- Blurts out answers before questions have been completed
- Difficulty awaiting turn
- Interrupts/intrudes on others

Subsequent to the conductance of each of the three time-sampled behavioral observations, the "percentage" of time periods during which each target behavior was noted to have occurred is computed (i.e., a percentage of "time present" is calculated).

V). The final component of the assessment protocol is the completion of The Attention Deficit Disorders Evaluation Scale (ADDES, 1995). The ADDES, which was recently reviewed and found to be psychometrically sound (Today's School Psychologist, November 2000) it was selected for the following specific reasons:

1). It has both School and Home versions, thereby allowing for valid cross-contextual comparisons of level of "impairment". This aspect has clear implications with regard to the DSM-IV criterion that there must be evidence of functional impairment in two settings (i.e., home and school).
2). It was constructed with the DSM-IV criteria explicitly in mind and the device also has a "DSM-IV" form that allows each of the rated items to be linked to each diagnostic criterion.

3). The scales allow for objective "frequency" ratings of each behavior (e.g., "One to several times per hour") and therefore do not require the respondent to engage in speculation or interpretation regarding the "metric" of the question.

The ADDES is administered to all of the instructors having regular contact with the student, as well as to both parents/caregivers (provided that they each have regular contact with the child). The importance of securing the behavior ratings from all of the adults having regular contact with the child is that their judgements can vary greatly. By gathering input from all of these individuals, a much more reliable determination can be made about the issues of pervasiveness and severity of the child's behavioral impairment. When the completed forms are received, they are scored and interpreted according to the age and gender norms. As a final interpretive step, the DSM-IV Verification form ought to be utilized in order to determine that there is cross-contextual agreement regarding the issues of behavioral symptomatology and level of impairment.

VI). The final step in the process is for the evaluator to complete "The Components of ADHD Assessment Summary Sheet", which serves to document and ensure that all sources of salient information have been included in the evaluation. While no "numerical cut-offs" have been established with regard to interpreting the above sources of information, this form does allow all of individuals involved in eligibility decisions to view all of the relevant information.

EVIDENCE OF EFFECTIVENESS

When this assessment protocol was initiated by the school district, students were being identified as Other Health Impaired due to a diagnosis of ADHD in an idiosyncratic and inconsistent manner. More specifically, the determination regarding "eligibility" for the provision of Special Educational services was being driven by factors that were unrelated to the veracity of the handicapping condition, such as parents who would procure the diagnosis from outside practitioners. However, subsequent to the implementation of the above described guidelines for the school-based assessment of ADHD at the secondary level (the level at which the author practices), the dual issues of inequity and validity have been addressed. With regard to the percentages of Special Education students who have been identified as meeting the ADHD diagnostic criteria under the "Other Health Impaired" classification since the implementation of these guidelines, the following information is presented:

School Year	%age
2000-01	4.0
1999-00	3.4
1998-99	2.8
1997-98	2.6
1996-97	1.9
1995-96	1.85

The above information conveys the fact that, while the overall percentage of ADHD identified students at the secondary level has increased over the past five school years, this increase can still be characterized as "moderate". In addition to this point, it is salient to note that the overall percentage of students is still broadly consistent with the estimated population frequencies that are cited in the DSM-IV, as well as in other sources.

However, apart from the "quantitative aspect" of the assessment protocol's impact, it has also resulted in several other beneficial changes that are enumerated below:

-The guidelines help to ensure that there is now continuity between buildings, grade levels, and personnel in their assessment of children suspected of ADHD. This continuity, in turn, allows for more responsive and informative evaluations and more appropriate educational/treatment decisions.
-The guidelines allow for greater "control" of educational decision making and subsequent programming. More specifically, rather than ceding control to some external "medical" or mental health practitioner, the school based evaluator is afforded the means to engage in a comprehensive assessment that is grounded in "best practices" and is also legally and ethically defensible.
-These guidelines allow for more "equitable" decisions to be made, wherein there is a mitigation of the influence of such factors as teacher/parent "advocacy" or some other systemic and/or extra-systemic factors resulting in the inappropriate classification of a child.

RESULTS AND DISCUSSION

As a result of the implementation of these ADHD assessment guidelines, it is felt that our school district has taken a proactive step in implementing the type of multi-source, multi-method assessment approach that was recommended by several recent "meta-analyses" regarding "best-practices" for ADHD evaluation. More specifically, this protocol makes the DSM-IV definitional language regarding ADHD very "practical" and applied, and it also implements all of the diagnostic components of the criteria for the disorder. By making these diagnostic standards operational in the school context, the evaluator is also empowered, as the evaluative process relies upon current "best practices". Additionally, the evaluation protocol minimizes the influence of factors which are not seminal to the assessment and subsequent decision making processes.

The assessment guidelines that are described in this article are unique from others that have been presented in the literature, in that they affirm that the school based practitioner does have access to reliable and valid means of making decisions regarding the assessment of ADHD. These guidelines afford an empirically based means of addressing the confounded messages and "boundaries" that ADHD and it's diagnosis have evoked in many school personnel. When these guidelines are implemented and followed in a consistent manner, they afford a comprehensive, sensitive and legally defensible means of differentiating those students who are exhibiting unique distress with their ability to

regulate their level of arousal and behavior and who therefore meet the DSM-IV criteria for ADHD.

With regard to "lessons that have been learned" and how a greater degree of integrity could have been obtained, it is seminal that all of the involved individuals (i.e., school psychologists, CSE Chairpersons, Special Education staff) be consistent with regard to the implementation of the guidelines. In retrospect, while the content of the current guidelines is thought to be valid and reflective of current "best practices", the process of how these criteria were disseminated and implemented might have been improved if all staff felt involved and invested in the endeavor.

IMPLEMENTATION GUIDELINES

The purpose of the diagnostic guidelines that are described below is to make the process of "school-based" ADHD diagnosis more reliable and valid. The justification forming the basis for these guidelines are a thorough review of the empirical literature that was recently substantiated by position papers from the American Academy of Pediatrics, the American Academy of Child and Adolescent Psychiatry and the National Institutes for Health. The following guidelines represent the components of the evaluative protocol:

1). Completion by the parent of a Social-Developmental History form that specifically address issues of behavioral regulation, as well as "co-morbid" issues (a copy of the complete document can be obtained by writing to the author).

2). A complete review of all of the student's school records, with a particular emphasis on the first three years of school. When these records are reviewed, special attention ought to be paid to the child's development and functioning in the general areas of "Personal Work Habits" and "Self-Management & Relationships". Both "objective" and narrative information ought to be considered in this review.

3). A recent physical (i.e., within the past year) ought to be included in the referral information to address any areas of possible medical distress or behavioral dysregulation that might be a manifestation of a physical disorder.

4). In order to address possible co-morbid issues that might be "contributing" to the child's problematic behavior, the use of a full-scale measure of cognition, assessment of academic skills, and interview should typically be conducted. Resultant "follow-up" evaluations of receptive language, memorial abilities, socio-emotional functioning and adaptive behavior, should also take place as judged appropriate. Documentation of the child's behavior during the assessment sessions ought also occur, with special note being made of the salient issues of selective/sustained attention and ability to inhibit impulsivity and distractedness.

5). Four half-hour long time-samplings of the child's behavior, using a "partial-interval" approach. The first of these observations is conducted in a "blind" manner to "objectify" the contextual discrepancy of the child's behavior. The next three observations are

conducted in different settings and at different times to minimize any contextual factors that might be contributing to the child's behavior. These three observations are structured into sixty blocks, each of 30 seconds length. The "target behaviors" are those DSM-IV/ADHD symptoms that are directly observable and these are listed directly on the observational form. A "frequency count" and "percentage of time" evident are calculated for each of the target behaviors.

6). All of the student's instructors and both parents (if at all possible) ought to complete the appropriate version of the ADDES. Subsequent to the completion of these behavioral rating forms, the information contained on each one should be an ADDES "verification" form. These completed ADDES verification forms thereby allow for a means of comparing "symptom consistency" and perceptions of the student's cross-situational behavior in a more reliable manner.

7). Completion of the above components should be transferred onto "The Components of ADHD Assessment Summary Form" to ensure that all have been included in the evaluation.

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